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VACCINATION  
AND ITS  
PROTECTIVE POWER,  
IN THE  
STATE OF WEST VIRGINIA:

A REPORT TO THE GOVERNOR, NOVEMBER 8, 1870,

By JOHN C. HUPP, M.D.,  
III

State Vaccine Agent.



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# VACCINE AGENT'S REPORT.

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THE STATE OF WEST VIRGINIA,  
VACCINE AGENT'S OFFICE,  
WHEELING, November 8, 1870.

To His Excellency WILLIAM E. STEVENSON,  
*Governor of West Virginia:*

SIR: Among the provisions of an act of the Legislature, to provide for the public health and define the duties of the Vaccine Agent, is the following:

"11. The Governor shall annually appoint and entrust with some fit agent, who shall furnish by mail or otherwise, every citizen of this State, and soldier in the armies of the United States, and in the service of the State, who may apply therefor, with genuine vaccine matter, and directions how to use it, free of charge."

In accordance with your expressed opinion, that a 'report of the quantity of virus distributed, and who gets it, and on the general importance of the subject, &c., \* \* \* would be generally useful,' the following report has been prepared.

It may be premised in the outset, that my first commission as Agent bears date of January 1, 1863, which was under the reorganized government of Virginia.

From that date to the present I have been successively entrusted with the very important and responsible duties of sending to all who would accept it, the "simple, easily applied, harmless, and perfectly sure preventive" to "one of the greatest scourges of the human race."

The present seems to be a time, eminently fit and proper, for such report as your Excellency has indicated.

To set forth, in as concise a manner as possible, what means have been taken during the last eight years towards *staying the pestilence*, which has made its appearance annually or oftener in the State, is the first object in the preparation of this report.

## MEANS EMPLOYED TO PREVENT THE SMALL-POX.

'Immediately on his appointment, or re-appointment, the Agent gave notice by advertisement in two newspapers, printed in the city of Wheeling, that he was ready to furnish genuine vaccine matter, without charge, to any person or persons mentioned in the eleventh section of the act providing for the public health.'

The specimens of virus distributed were accompanied with printed instructions, as follows :

#### INSTRUCTIONS.

"To render the law 'Providing for the public health' as efficient as possible in extending the protection afforded by *vaccine virus* to 'Every citizen of this State, and soldier in the armies of the United States, and in the service of the State,' the Agent respectfully offers the following suggestions to those who obtain matter from this office :

"The time when vaccination ought to be attended to is, when the small pox is *not* in your neighborhood.

"As to the proper age for performing vaccination, if left to your own choice, you might properly select the fourth month as the most convenient, as at this age the arm is plump and the person free from such contending influences as teething ; but the operation may be performed at *any time* when an urgent necessity exists.

"The Agent requests reciprocal action on the part of those receiving matter, and hopes that all recipients of virus will regard it as a duty they owe the State, to *collect the scabs resulting from the use of the enclosed virus, and send immediately to the Agent, selecting only* such as come from the arms of *healthy* persons, and such scabs as have not been interfered with in their regular course by accidental violence, or other cause.

"By the fulfilment of this duty, on the part of the recipient, many difficulties connected with the satisfactory administration of the office, and many misapprehensions which otherwise might spring up between the Agent and the applicant, will be obviated, and a constant supply of genuine, fresh and reliable virus secured.

"The success of vaccination *cannot* be guaranteed ; for *vaccine virus*, under circumstances the most favorable, is subject to rapid decomposition, and during transmission it must be exposed to uncontrollable sources of injury.

"*Trial* is the only test of worth the Agent can offer you. When, upon *fair trial*, virus proves unsuccessful, the Agent desires to be notified of the fact, when more will be immediately furnished.

"*How to prepare the Patient.*—With the point of a sewing needle, or lancet, make five or six parallel scratches at the point selected for the introduction of the matter, cross them at right angles, with similar incisions. The surface should present a slight blush, with a very few specks of blood. Do not apply the matter till the bleeding has ceased, nor until all blood is carefully wiped from the scarified surface, otherwise the virus would be washed away by the blood, rendering the operation nugatory.

"*How to prepare the Virus.*—On glass or china, reduce by means of a clean blade and pure *cool* water, a small portion of the scab, into a very thin paste.

"*How to apply the Virus.*—Gently stretch the skin, at the point where you have made the parallel scratches, thus opening them. With the point of a small and thoroughly clean blade, smear and rub over the scarified surface, with one drop of the virus, prepared as above, and allow it to dry, which completes the operation, with every chance of success."

The following table gives an abstract of the quantity of vaccine matter distributed in the respective counties of the State during the last eight years.

TABLE—Showing where virus has been sent; total number of distributions each year, and the aggregate during the last eight years.

COUNTY.	1863	1864	1865	1866	1867	1868	1869	1870	No. of distributions to each county during 8 yrs.
Barbour.....	2								2
Berkeley.....	5				1				6
Boone.....								1	1
Braxton.....	2								2
Brooke.....	4	2	2				4	2	14
Cabell.....						1			1
Calhoun.....								1	1
Clay.....								1	1
Doddridge.....	3	3							6
Fayette.....							1		1
Gilmer.....								1	1
Grant.....								2	2
Greenbrier.....								1	1
Hampshire.....	2	7	2		2		2		15
Hancock.....	2								2
Hardy.....								1	1
Harrison.....	22	10	2	1		6	11		52
Jackson.....	1		1					1	3
Jefferson.....	1								1
Kanawha.....	4	2	3	1		1	2	2	15
Lewis.....	6	7					2		15
Lincoln.....								1	1
Logan.....							2	1	3
Marion.....	17	5	2	3		1	1		29
Marshall.....	15	17			9	9	6	1	57
Mason.....	1	1	1	1	1	3	5	3	16
Mercer.....								1	1
Mineral.....								1	1
Monongalia.....	13	4		1			3		21
Monroe.....	1							1	2
Morgan.....	1	3							4
McDowell.....								1	1
Nicholas.....		1							1
Ohio.....	134	25	2	5	22	34	25	83	330
Pendleton.....	1								1
Pleasants.....	1		2	3					6
Pocahontas.....								1	1
Preston.....	21	9	2	2	2	16			52
Putnam.....	2	1				2			5
Raleigh.....								1	1
Randolph.....	1		1						2
Ritchie.....	1		1					1	3
Roane.....								1	1
Taylor.....	10	3	3	2		2	2	1	23
Tucker.....	1								1
Tyler.....	3		1	1				3	8
Upshur.....	9	2					1		12
Wayne.....	1								1
Webster.....		1							1
Wetzel.....	10	3	1	1		2	2	1	20
Wirt.....			2	2		1		1	6
Wood.....	1	1	1		1	4	6	2	16
Wyoming.....								1	1
Hospitals and regiments of soldiers	19	29							48
Totals.....	317	136	29	23	38	82	75	119	819

Thus we find exhibited in the foregoing table :

Aggregate No. of distributions in eight years, . . . . .	819
No. of persons vaccinated by the Agent in eight years, . . . . .	1,302
Grand total of vaccinations and distributions of virus in 8 years, . . . . .	2,121

The foregoing table gives a faithful exhibit as to the distributions of matter, but affords an imperfect idea as to the labor actually performed by the Agent, in the execution of the duties to him, by law, entrusted.

Orders calling for enough matter to vaccinate the inhabitants of a town or neighborhood have been of frequent occurrence. But the *distribution* of matter is the least laborious and responsible portion of the Agent's labors. To have *on hand* fresh, genuine and reliable vaccine matter when, "by mail or otherwise," urgent calls are made upon him for matter, is the great desideratum.

All demands for vaccine matter are urgent. Most persons think nothing about vaccination until the small-pox has made its appearance in their own families or immediate neighborhood. Then, panic stricken, they frantically seek for protection.

Small-pox is liable to be imported into our midst any day, by railroad or steamboat. Hence, the Agent *must*, at all times and under all circumstances, *have on hand* a supply of "genuine matter."

No mention will be made to your Excellency of the many difficulties and perplexities, necessarily encountered in keeping on hand a *constant* supply of "matter;" but the Agent would here state, that the thirteen hundred and two vaccinations (nearly all gratuitously) performed, were with this intention.

#### PROBABLE NUMBER VACCINATED.

There is no accurate data from which an estimate can be made as to the number of persons vaccinated with "matter" sent out from this office. Twenty persons vaccinated from each specimen or parcel of matter sent, would make over sixteen thousand, and to this number add the thirteen hundred and two vaccinated by the agent, would give more than seventeen thousand persons vaccinated within the State in eight years, and more than two thousand each year during the same period.

#### THE DEMAND FOR "MATTER" PERPETUAL.

According to the Auditor's report for the year eighteen hundred and sixty-nine, about ten thousand children are born in this State every year, which, in eight years, would give an increase in our population from this source alone of eighty thousand persons.

From eighty thousand, the number born during the last eight years, subtract say, in round numbers, seventeen thousand, the number vaccinated during the same period, and this leaves sixty-three thousand of

the number of persons born during this period who are *unprotected* from small-pox.

Thus, it is painfully apparent, that the demand for "matter" will not only continue but will constantly increase, in any given time, in the proportion to the number of children born in the State during the same time.

Great benefits have been secured to the people of every county, from the matter already distributed; but the State has been badly protected, many of the inhabitants never having been vaccinated, there is thus always a soil adapted for the growth of small-pox.

Every child born in the State, so long as it remains unvaccinated, furnishes an additional subject to be protected from this loathsome disease. For "susceptibility to variola is a condition common to the whole human family."

#### IMPORTANCE OF VACCINATION.

Suppose the State deprived, for five years, of the "boon conferred on humanity by the immortal discovery of Jenner," and that during this period the small-pox should be imported among us—what, then, would become of the sixty-three thousand unprotected persons now in the State together with those ten thousand children born every year? Thus, within five years, the number of unprotected persons in the State would become one hundred and thirteen thousand; a number nearly equal to one-fourth of the State's present population. Small-pox spares neither sex nor age.

Withhold vaccination and where is the hope of escape, except by flight from the fell destroyer, for these 113,000 unprotected children?

Sum up "the natural history of small-pox in undisturbed and in unprotected communities," and *there read their dreadful destiny!*

"Of every one hundred persons attacked thirty-three die" and "among those whom it permits to recover," may be found those disfigured with scars, those with general health profoundly shattered, and last, though not least, those partially or totally BLIND and DEAF.

Should such a calamity befall the State, as that of withholding from the people, for even a brief period, "the inestimable advantages of that protection from small-pox which vaccination affords," then, indeed, would the mortality from that disease become "Something awful, something almost incredible."

Our Legislature, awake to the always impending dangers to the people from small-pox, has enacted wise and wholesome laws encouraging the application of the vaccine prophylactic, with the beneficent purpose of averting so dire a calamity. And why should it be otherwise? Vaccination is preventive of small-pox, and in all cases perfectly harmless.

These facts, gained by experience and observation, and overwhelmingly substantiated by the highest hygienic authorities, have been patent to the civilized world during nearly three-quarters of a century.



Where, within the whole range of human experience, was ever an epidemic of variola, however severe, that vaccination did not promptly and effectually arrest, when it was universally and efficiently applied to the class or community exposed to the contagion?

It is deemed unnecessary to mention examples confirmatory of the promptness and efficiency with which vaccination arrests the spread of small-pox, when the fact is so overwhelmingly substantiated by universal observation and experience. Hence, is deduced undeniably, the conclusion, that "Small-pox only exists among us in consequence of the neglect to apply the preventive."

Some school boards *require* "Children to produce evidence of their having been successfully vaccinated before they are permitted to attend the public schools." Exemption from severe variolous epidemics in the American and in all European armies, is the result, directly, of compulsory vaccination. It is said that Prussia and Austria have not been scourged with an epidemic of small-pox, of any severity, for the last fifty years.

WHY? Because these governments *require* the efficient application of the vaccine prophylactic to every person within their respective territories.

West Virginia *can do the same.*

Shall we speak of the *cost* of such an enterprise when the health and lives of the whole unprotected population in the State, are at hazard?

An intelligent public sentiment in this State, it is believed, approvingly awaits the inauguration of so beneficent a legislative provision.

If "a numerous population is of the highest importance to the strength and welfare" of a State, why should her legislators falter to enact such laws as will protect the health and lives of her people?

"Legislators enact laws for the protection of sheep, the prevention of hydrophobia and cattle disease, for the impounding of the poor man's pig and cow," and why not provide laws and make liberal provisions for the execution of those laws, enacted "for the prevention and amelioration of disease, a *preventible disease of human beings*," which "kills one in every three that it attacks, and blasts the beauty of the rest?"

Many remarkable and interesting incidents occurring under the immediate observation of the Agent might be given, illustrative of the

#### PROTECTIVE POWER OF VACCINATION

Only two or three instances, however, will be mentioned, in which vaccination, without doubt, was the means of saving life.

The City of Wheeling was scourged with small pox, in the spring of 1864—so much so, that the Board of Health deemed "it eminently fit and necessary to order and direct the vaccination of *all persons* within

the city, who may not have been vaccinated." There were several cases of variola and varioloid in the fourth ward. In executing the order of the Board, I found a family in the immediate neighborhood of the infected locality, in which were five unprotected persons, one of whom had occasionally carried articles of diet to the house, in which the sick were confined, passed them to the attendant at the window, and consequently, had been exposed to the variolous contagion.

The unprotected members of this family, were brought out from under the bed and other places of concealment, and three or four insertions of vaccine virus were made in an arm of each.

At the points of insertion of virus in each of these five children, thus vaccinated compulsorily, characteristic vaccine vesicles arose. But the member of this family that had been exposed to the variolous contagion, had a mild, but very distinct eruption of varioloid also, which run its course regularly with the vaccine disease. I saw this child on the eighth day after vaccination, with both diseases in full bloom, playing about the room with the other four children. The question arises: could such a happy and satisfactory a state of this child's condition have been met with, without vaccination? Who can doubt that this child had already contracted small-pox *before* I inserted the vaccine prophylactic?

Hence it is deduced, that even *after small-pox had possession* (in some degree) *of this child*, vaccination at so late a period, rendered, in this instance, the variola entirely harmless. And how much more so would it have secured complete *exemption* from even varioloid, if a timely application of the vaccine prophylactic had been made.

The impunity with which the other four members of this family played in the same room, and slept in the same bed with this child, diseased with varioloid, (which will communicate variola to the unprotected, as certainly as variola itself will,) is also undoubted evidence, as to the protective power of vaccination.

And further, I have, in repeated instances, seen the mother with her face and person thickly dotted with incipient confluent small-pox, and her *unprotected* child closely nestled by her side. In every such instance, I promptly vaccinated the child, and always had the pleasure of witnessing the regular development of the true Jennerian vaccine vesicle—the undoubted proof of the child's protection and safety! And subsequent to vaccination in those instances, each child continued for weeks, in the midst of the most virulent variolous contagion with absolute impunity!

Such are some of the triumphs over variola, achieved by vaccination. Can there be any better protection against small-pox than this?

We deem it unnecessary to multiply instances, illustrative of the efficacy of vaccination, as a preventive of variola.

We have somewhat to say of

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## VACCINE VIRUS,

the instrument we have employed in the accomplishment of results so uniformly satisfactory.

An experience of twenty-two years in applying the vaccine prophylactic, has brought no facts to my notice that would lead me to conclude that "vaccine virus loses its protective power in passing through the human race."

The vaccine virus distributed from this office to all the physicians in Wheeling, and to every county in the State, has been the matured crust removed from the arm, about the fourteenth day after vaccination.

For distribution and for constant use in vaccinating, I prefer vaccine virus in this form :

1st. Because of its greater convenience, and

2d. On account of its certain and effectual, in my experience, prophylactic powers.

The matured scab or crust, is generally preferred and used by the most experienced vaccinators in our country, who may be regarded as of standard authority.

Edwin M. Snow, M. D., Superintendent of Health in the City of Providence, in his published Report on small-pox in that city, 1859, says : "The vaccine virus used in this city during the past winter, has been almost invariably, a solution in water, of the dried scab, taken from the arm, from the fourteenth to the twentieth day after vaccination."

As to its protective power, Dr. Snow adds : "It has given during the present season, absolute, unqualified protection against repeated and continued exposure for weeks, to severe cases of small-pox, and it has done this in scores of cases, *and without a single failure.*"

Drs. J. F. Meigs and William Pepper, of Philadelphia, in their Practical Treatise on Diseases of children, 1870, say : "In this city, however, the crust is usually employed, and has been found entirely efficacious and satisfactory."

Prof. George B. Wood, of same city, in his Treatise on the Practice of Medicine, states that "The scab is certainly efficacious, and in this country is almost exclusively used." \* \* \* "I have used it from the commencement of my practice, and I remember only two instances in unprotected persons, in which I did not sooner or later succeed with it."

Prof. Austin Flint, of *Bellevue Hospital Medical College*, in his *Treatise on Practice of Medicine*, says : "The vaccine crust has the advantage of being more easily preserved, and of retaining the virus for a longer time than the lymph."

Prof. J. Lewis Smith, of *Children's Hospital*, New York, says : "The scab is more easily preserved than the lymph, and, therefore, if the scab and lymph are old, the scab is to be preferred."



In Dr. D. Francis Condie's *Practical Treatise on the Diseases of Children*, we read as follows: "The experience, however, of the great body of American practitioners, has confirmed them in giving to the dry crust or scab, the preference over the recent lymph, as a means of propagating the vaccine disease. While equally efficacious with the latter, the scab is much more manageable, and more readily preserved." \* \* \*

Such is the evidence of men who have obtained eminence in their profession, are skilled in sanitary science, and are, on this subject, regarded as of standard authority.

As to the

#### QUALITY OF VACCINE VIRUS

distributed from the office, the following letter may furnish sufficient evidence.

"SURGEON GENERAL'S OFFICE,

WASHINGTON CITY, D. C.,

February 11, 1864."

"SIR:—I am instructed by the Acting Surgeon General, to inform you that the Vaccine Virus lately forwarded by you to this office, has proved so much better than that usually received, that he will be glad to take as much as you can spare of a similar quality.

I am sir, very Respectfully,

Your Ob't Servant,

By order of the Acting Surgeon General,

CHAS. C. LEE,

Asst. Surg. U. S. A."

"JOHN C. HUPP, Esq.,

Vaccine Agent's Office,

Wheeling, West Virginia."

To any person about to be exposed to the contagion of small-pox, we would recommend and urge the propriety and necessity of

#### RE-VACCINATION.

For this is "the only reliable evidence we can have, that complete vaccine protection has been obtained."

To obtain this evidence, re-vaccination is necessary. Re-vaccination solves the query—removes the doubts in any given case, and decides the question, whether the vaccination is complete, incomplete or there is non-protection.

No person doubts the existence of varioloid. The fact that varioloid does exist, is positive proof of the protective power of vaccination. Partial protection yields varioloid, total unprotection yields variola in persons exposed to the variolous contagion.

If we possessed no means of protection, varioloid could not exist; but variola would exist with undisturbed dominion over the health and lives

of the people, and would constantly multiply. As it would increase, our population would decrease.

The fact that vaccination, may, in certain instances, protect only partially, or for a limited time, or forsooth, may "wear out," is no evidence against its protective power. As clothing covers nakedness, and more clothing compensates for insufficient covering of the body, so is the protective power of vaccination and re-vaccination to the unprotected and partially protected from small-pox.

All things of the earth are perishable. Some things, from the wear and tear of time, require repair or renewal sooner than others. But because all earthly entities do wear out, we cannot, from this, conclude that they did not previously exist, nor that they should not be repaired nor renewed.

Likewise, if vaccination is suspected to be incomplete or worn out, the remedy is re-vaccination.

Therefore, when a vaccinator is called upon to decide whether a family is, or is not protected, instead of trusting in abstruse theories, or speculative conjectures, let him rather be practical and re-vaccinate; and then he can feel "as confident of their safety from an attack of variola, as he can of anything in the future."

We might quote statistics, showing the great good vaccination has secured to the human race, and lay before your Excellency the conclusions elucidated from such data; but this report is already more extended than was originally designed, and is herewith,

Respectfully Submitted,

JOHN C. HUPP, M. D.,

*State Vaccine Agent.*

WHEELING, November 8, 1870,

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